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THE IMPORTANCE OF UNIVERSAL PERIODIC LABORATORY EXAMINATION

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ABSTRACT: Data from several studies have showed that many people are unaware of the importance of universal periodic examination and its importance in the early detection of different disorders such as diabetic. Early detection aims at discovering and curing conditions which have already produced pathological change but which have not so far reached a stage at which medical aid is sought spontaneously. Effective and early detection of disease requires not only the alert and prevention-oriented medical profession but also needs the public co-operation in the operation. The aim of this study was to assess the awareness level among Saudi and non-Saudi male and female. **Method:** three electronic-page of self-completion questionnaire was developed and covered: general information about participants, as well as their awareness about the importance of periodic examinations. **Results:** unfortunately, the study revealed that out of 216 participants, only 47% had performed laboratory tests recently such as hemoglobin level and blood glucose level. On the other hand, the majority had not performed any laboratory investigations and 5% were not sure if they did the check up laboratory tests or not. This study was also observed that the majority of the participants 72.2% had a positive family history of diabetes, hypertension or/and heart disease. **Conclusion:** thus, this study suggested that some laboratory screening tests should be offered for high risk individual at specific age among the community and only for the common diseases such as diabetes.

KEYWORDS: Awareness, Laboratory, Periodic, Examination

INTRODUCTION:

Data from several studies have showed that many people are unaware of the importance of universal periodic examination and its importance in the early detection of different disorders such as diabetic[1], kidney disease[2], heart disease[3] and Hypertension[4]. The majority did not think of going to a doctor or making laboratory screening tests for routine check up unless they have a specific complaint. According to the World Health Organization (WHO), periodic physical examination combined with laboratory screening have a crucial role in protecting the individual and the population from attack before the challenge has been made [5]. Early detection aims to discover and cure conditions which have already produced pathological change but which have not so far reached a stage at which medical aid is sought spontaneously. In addition, the CCI Conference on Preventive Aspects of Chronic Disease, held in 1951, defined screening as "the presumptive identification of unrecognized disease or defect by the application of tests, examinations, or other procedures which can be applied rapidly. Screening tests sort out apparently well persons who probably have a disease from those who probably do not. Williamson and colleagues, have reported that many

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remediable defects are to be found in the elderly and aged by routine physical examination and laboratory screening[6]. Screening based on good quality evidence for the early detection of disease will contribute to quality of life, however, it can be wasteful when it is unfocused or it is blindly followed in the absence of evidence[7]. It is also important that the laboratory screening methods should be at high diagnostic accuracy and sensitivity level to avoid samples re-run and wasting resources[8]. It should be noted that the screening test is not intended to be diagnostic. For example, low haemoglobin level is not necessary to be relatedwithanemicdisorder. The laboratory screening could be mass screening or selective screening, both were classified by the WHO. Mass screening indicates the large-scale screening of whole population groups, where no selection of population groups is made. While, selective screening term is used for the screening of selected high-risk groups in the population. It may still be large-scale, and can be considered as one form of population screening [5].The following are some of the essential laboratory tests which should be available at health centre; haemoglobin determination, blood sugar (glucose), tuberculosis (TB) diagnostics, malaria diagnostics (if in endemic area), rapid test for pregnancy and urine dipstick for sugar and protein. However, additional essential laboratory tests that can be done at district hospital such as; human immunodeficiency virus (HIV) diagnostics and basic cerebrospinal fluid (CSF) and urine microscopy[9].Effective and early detection of disease requires not only the alert and prevention-oriented medical profession but also needs the public co-operation in the operation. Awareness and knowledge about the value of periodic laboratory investigations and early diagnosis essential to be spread to the community. In addition, there are numbers of reasons behind the low awareness level about the importance of universal periodic laboratory examination including financial intention, low educational level or lack of clarity of periodic examination from the Ministry of Health. The aim of this study was to assess the awareness level among saudi and non-saudi male and female.

METHOD:

An online questionnaire study was carried out between March and June 2017. Three electronic-page of self-completion questionnaire was developed. The following were covered in the questionnaire: general information about participants, including; gender, age, social status, nationality, educational level, job status, family income and standard of living as well as the importance of periodic examinations.

DATA ANALYSIS

The responses to all parts of the questionnaire were collected and analyzed statistically using SPSS version 16. Responses with missing values were excluded.

ETHICAL CONSIDERATION

Ethical approval for this study was obtained from the ethics review committee of Applied Medical Sciences College at Al-Taif University. All information obtained at each course of the study was kept confidential.

RESULT:

A total of 216 adults with were involved in this study by answering the online questionnaire. Of these participants, 29.4% (n=62) were males and 70.6% (n=149) were females. The majority of the participants were Saudis and married with 96.2% (n=202) and 70% (n=147) respectively.

The age was ranged from 18 to 90 years. The educational status of the test group was assessed and showed that 31% (n=68) were highly educated (either master or PhD), and 52% (n=120) participants had the bachelor degree, whereas 11% (n=24) had been educated up to high school level. Only 1.5% (n=4) had secondary school level (Figure 1).

Among the study participants there were 54% (n= 116) work at government sectors, 16% (n= 35) work at private sectors, and only 27% (n=59) have their own business. Whereas, the unemployed participants were accounted 3% (n=6) (Figure 2). On evaluating the family income and standard of living part of the questionnaire, we found that 66.6% (n=144) participants were had an average living level, and 66% (n=144) did not have medical insurance while only 34% (n=74) had the insurance from their work at private companies. Unfortunately, the study revealed that out of 216 participants, only 47% (n=99) had performed laboratory tests recently such as haemoglobin level and blood glucose level. On the other hand, the majority 48% (n=107) had not performed any laboratory investigations and 5% (n= 10) were not sure if they did the check up laboratory tests or not. This study was also observed that the majority of the participants 72.2% (n= 156) had a positive family history of diabetes, hypertension or/and heart disease (Figure 3). Luckily, 75% of the participants believed that early disease detection by making laboratory investigations have an important role in preventing, delaying and/or monitoring of the disorder (Figure 4). However, 21% (n= 44) and 4% (n=9) answered with unsure or no relation between the laboratory screening and disease early detection respectively.

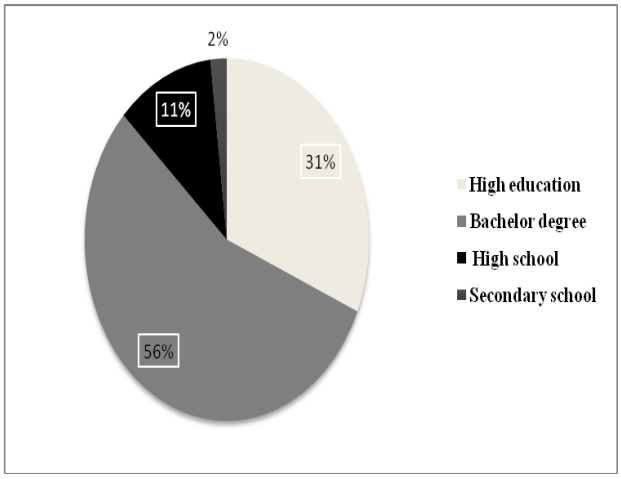

Figure 1: Shows the educational status of the participants

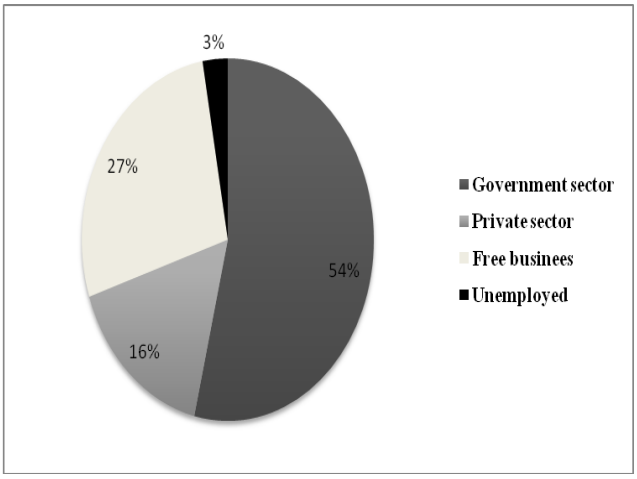

Figure 2: Shows the job status of the participants.

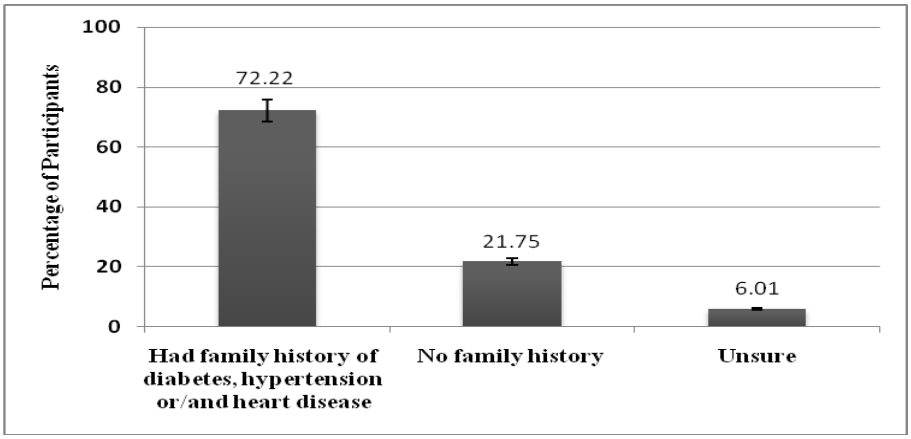

Figure 3: Shows the status of family history of the participants

DISCUSSION:

Since, laboratory screening tests has an important role in medical decisions, patient's treatment and early detection or/and prevention of some disorders thus, an organized guidelines should be made by the ministry of health to be followed by private and government hospitals7. Such system must be based on specific criteria for the laboratory screening program for example; good quality and sensitivity of the test10. Also, evidence should be presented for the early detection of disease. In addition, Bates and colleagues reported that the laboratory screening methods should be at high diagnostic accuracy and sensitivity level to avoid samples re-run and wasting resources8. However, there are a several number of researches for and against the introduction of laboratory screening tests by the health care provider or ministry of health11. In Canada, early detection of cervical cancer with the laboratory Papnicolau smear had a crucial role in reducing the incidence and mortality rates with 20%7. However, in Britain the early laboratory investigations for some health disorders had not reduce the number of missed diagnosis12.

This study suggested that some laboratory selective screening tests should be offered for the high risk individual at specific age among the community and only for the common diseases such as diabetes and hypertensive. Results of this study reported that the majority of the participants 72.2% had a positive family history of diabetes, hypertension or/and heart disease. A study done in 2011, has been found that the prevalence of diabetes was 34.1% in Saudi males and 27.6% in Saudi females13.

Moreover, the screening test should be at high accuracy and sensitivity level with trained staff and low cost otherwise it will be wasting of resources and effort. The World Health Organization has been listed a number of critria in 1971 to be followed to have a successful laboratory screening program such as; the cost, sensitivity, specificity and acceptability of the screening test10.

To offer a free screening program is not enough to encourage individual at high risk to perform the laboratory investigations, improving the community awareness regarding the importance of making the periodic laboratory check up is also essential.

Finally, if the early disease detection is achieved then this will reduce the cost for treatment, morbidity and mortality rate. This will might also minimize the disease consequences and complications, which will have a positive effect on individual health.

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CONFLICT OF INTEREST: Authors declared no conflict of interest.